

Guidelines and Other Tips for Excelling at a Marine Mammal Internship

An Honors Thesis (HONRS 499)

By

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A handwritten signature in black ink, appearing to read 'Robert B. Fischer', is written over a horizontal line.

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Abstract

The first step in gaining a career as a marine mammal trainer is going through an internship. This guide is written just months after an internship experience. It offers most of the same advice and research that the long established guides offer, plus a little look at what you can actually expect from working with animals. This guide offers advice on finding a place to work, resume and cover letter help, interview suggestions, and some basic knowledge about the animals you can expect to work with. It also offers an in depth look at the Indianapolis Zoo's internship program: from the steps you will go through, enrichment devices, and common behaviors the animals know. Classes that apply are also included along with a list of books, articles, and Web sites you may find helpful.

Rationale

The idea for this paper came from not being able to find many resources about marine mammal internships. When I was applying for my internship at the Indianapolis Zoo, I had a hard time deciding what would be the best information to put on my resume and cover letter. I also had no idea what to expect for the first few days. For these reasons, I started this project by going through resume, cover letter, and interview help. I also wanted to show what my first few days and weeks were like while working at the zoo. I also thought it was important to include information about how to advance through internship steps and how to advance within the career itself.

The other items that are included in this paper were all chosen because they provide valuable insight into the types of information one acquires while working in this type of internship. Getting a job in this field is about three things: one, knowing more than the other people that are applying; two, being in the right place at the right time; and three, working well with the team. Out of all of these, you can only control one. The more information a person has about training and the animals they are going to be working with, the better chance they have to get the job.

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Getting Started

So you want to get an internship at a marine mammal facility? Well, there are a few things you should know. Many marine mammal internships are not paid; they are considered experience based and filled by volunteers. Also working at a zoo or an aquarium is not glamorous work. It is hard, long hours, many of which go unrecognized (Glen, 1997). The animals you are responsible for do not care that it is Sunday or Christmas. They do not care when you have a cold or have had a long week. They do not care if it is a hundred degrees outside or if there is five feet of snow present. They need to be fed and cages cleaned 365 days a year. In spite of these factors, working with animals can be a very rewarding and satisfying career. It is amazing to begin working with animals that won't come anywhere near where you are, then one day you look around, and they are at your feet taking food from your hand.

The first step in this process is finding a facility at which you would like to work. In the Appendix is a list of many of the marine mammal facilities across the United States. It is, however, not all of them. This is merely a starting point. Many people choose a place for their first internship based on what is close to home. This is a nice idea because it helps save money and allows you to have some moral support from family and friends.

The next step after picking a place you would like to work is coming up with your resume, cover letter, and other application materials.

Resume

One of the first things you will need to do to get a marine mammal internship (or any internship) is construct a resume. This is going to be your first contact with the facility of your choice, so it needs to be eye catching. The whole point of a resume is to get an

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interview. There are many books out there to help you put together your resume, and I advise looking into one or two of them for ideas. Ball State, like many universities, offers resume help at Career Services. They have walk-in hours every week (check career services Web site for hours), where a grad student will look over your resume and make suggestions. Here is a basic idea of what should be included in your resume. You can find examples in the appendix.

- Contact Information (both home and school)
- Educational history
- Work history
- Any animal experience you may have:
 - Taking care of pets at home
 - Volunteer work at an animal shelter
 - Previous Internships
 - Any jobs that dealt with animals
- Other Information:
 - Scuba Certification (you will need this)
 - Hobbies
 - Computer knowledge or other skills, such as photography
 - Research experience

The main thing to keep in mind is anything, that will make you stand out from the hundreds of others that are applying, should be in your resume.

Cover Letter

Most internships also want you to include a cover letter with your resume. The format of these will vary depending on the facility. Some have certain questions they want you to answer, while others just want a general cover letter. The format for the cover letter can usually be found with the facilities other application materials and it is usually on their Web site. It is helpful, however, to keep the same header format from your resume on your cover letter. You also want to keep your cover letter to one page. The people that are reviewing these only have a short amount of time to look at both your cover letter and resume.

Since it can be overwhelming to write a general cover letter, we will start there. Your first paragraph should include something that would make the reader want to read the rest of the letter. This can be anything from a short description of what made you want to apply to this facility or an experience you had with a marine mammal. The other item that needs to be near the end of the first paragraph is the position you are applying for (i.e. I am applying for your marine mammal internship for summer of 2005).

The next few paragraphs of your resume can include a wide variety of topics. Some ideas to choose from are:

- Why you are well suited for this internship.
- What you can offer to the team.
- Qualities that help you get along with others or make you a good worker.
- What you are hoping to learn through the experience.
- Where you heard about this experience (this is a good place for name dropping if you know someone that works at the facility or other people in the industry).

You want to be remember to write clearly and concisely. You also want to be sure to thank the person for their time at the end of the letter and that you are looking forward to meeting with them for an interview. It also would not be out of line to include some times and days that you are available to meet with them. Many places also suggest that you follow up with a phone call a week after you send your materials in to make sure that they have received them (Career Services, 1996). This serves two purposes: one it brings your cover letter and resume to the top of the pile and two it gives the facility a chance to ask you any questions they have.

The more specific cover letters are easier to write. The one thing to keep in mind is to answer all of the questions fully. After you have provided all of the information they asked for, you could then include some of the tips from above to make your resume stand out from everyone else.

Interview

The next step in the process of getting an internship is an interview. This can be done in one of several ways. Some places do a phone interview while others may do a phone interview for the first round and then a face-to-face interview for the second round. Still others may only do face-to-face interviews. There are also differences in the actual interview; you may be interviewed by one person or by a group of people. Some places may even have multiple interviewees at a time. Whichever way the interview is done, however, there are some questions you can expect to be asked:

- How do you feel about animals in captivity?
- Name three of your strengths.

- Name three of your weaknesses.
- What weaknesses are you hoping to improve on through this experience?
- If I gave you a bucket of fish, a whistle, and told you to go feed Phoenix, what would you do?
- What are your favorite and least favorite zoos? Give three reasons why.
- How would you deal with a guest that was outraged about animals being held in captivity?
- What experience do you have with animals?
- How would you deal with a problem between yourself and a coworker?
- Do you see yourself as a leader or a follower?
- Do you see yourself as being more people oriented or animal oriented?
- Are you scuba certified? (This should be on your resume somewhere)
- Do you have public speaking experience?
- Where do you see yourself in five years?
- What knowledge do you already have about marine mammals?

Near the end of the interview you will also be asked if you have any questions for the interviewer. It is best to have a few questions in mind to ask. Here are some examples of possible questions you may want to ask:

- When will I find out if I have the internship?
- What type of scuba equipment do you supply?
- What are the possible shifts I'll be working?
- Will I be working with only one person or different people throughout the experience?

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- What specific kinds of animals will I be able to work with?

If you have a face-to-face interview, the hardest part may be deciding what to wear. Many fields will tell you that no matter what the company's dress code is, you should wear a suit and tie, or if you are female, you should wear a suit or nice dress. In many fields this is a correct statement. When it comes to the animal care field, however, it seems that business casual is more appropriate. One of my coaches put it best, "Wear something that makes it look like you could jump in right then and start working." For men or women, I would recommend a nice shirt and khaki pants. If the weather is warm, women could also get away with a knee length or longer summer skirt and a nice top.

If, however, all you have is a phone interview, then all the interviewer has to go on is how well you can present yourself on the phone. For this reason phone interviews are usually harder for most people. There are many books out there with suggestions for how to deal with phone interviews (and face-to-face interviews for that matter) and I recommend looking into one or two of them for some pointers.

First Few Days and Beyond

The first few days of any new experience can be nerve racking and uneasy. The best thing to keep in mind is that everyone you will be working with knows that it is your first day, and they do not expect you to know everything. This is especially important to remember when working with animals because if you try to help out and do something that has not been explained to you; you could endanger yourself, others, or the animals. The first day of any internship at a zoo usually involves an initial tour of the facility. This is a good time to ask any questions you have come up with since the interview. Another thing to expect during the first day or so is that you will be doing a lot of cleaning. Trainers find it easy to have new people help out with dishes and other housekeeping chores because it is very hard to make a mistake or hurt someone. This gives everyone a chance to get to know each other and see how things are going to go.

A new intern can also expect to be doing a lot of shadowing the first few days and even into the first few weeks. One has to observe what is going to happen before they can be taught how to do it. Paying close attention to the routine will also make your training quicker and easier. Just be aware that as you are following the keeper around there may be some areas you are not allowed to enter. This will be the case where a large or dangerous animal is present and this is for everyone's safety, especially yours.

As the weeks go on, you can expect to do more. But remember the best way to fill in dead time and to bridge the gap between you and the staff is to help out with the daily chores. After the first few days, you should start cleaning up things. If you know it needs to be cleaned, and you've been shown how to do it, then just do it. This shows the staff that you are dedicated to the job and that you know it is not all glamorous work. It also helps the staff

out by not having to worry about the housekeeping stuff. In most cases that is the main reason they have interns.

After you have learned all of the basic procedures for the facility in the given area or areas, the next major hurdle is to be able to tell the animals apart. There are very few places that only have one dolphin or one walrus, and for many animals within the species there is very little variability. This can make it very hard to tell one animal from the next, but know that the staff is there to help you. They will point out the distinctive characteristics between the animals. After a while, you will come up with your own ways to tell the animals apart. Just be aware of changing marks. Many of the marks dolphins have are acquired from their conspecifics during fights; these scars however will heal and go away after a few weeks. Also for a lot of the animals, there are many different behavioral clues that will help you tell them apart.

You will be asked to know some basic facts about the animals. Again the trainers will help out with this. These facts can include a short history about how the animal came to be at the facility or the basic biology of the animal. This can include names for the body parts, how the animal moves around, or even what they eat. All of this information needs to be learned because all animal keepers encounter questions from the public at some point. An intern that has this basic knowledge is better able to answer the guests' questions. This leads to being more confident and more helpful to the staff. You will also find that being able to answer guests' questions also makes you feel more at ease. Having some basic knowledge about the animals also helps you work with them better. You can find helpful information on some common marine mammals in the animal research section of this thesis. By reading through these and other resources, you will enter your internship with some basic knowledge. Also,

depending on the facility, you may be asked to narrate some of the shows or public chats (this will happen more at larger facilities). This basic knowledge can also help you fill in gaps in the script if there is a break in the program or you happen to get nervous.

As your internship continues, you will start doing more and more with the animals. The first big step will be helping out with the health and husbandry behaviors. These are the behaviors that allow the keepers to make sure the animal's health is excellent. As an intern, you will help out by playing the part of a second person, or pretending to be veterinary staff. Many animals are use to only the trainer being around, so when a second person, usually a veterinary technician comes around, they may get scared and not perform well-trained behaviors. By working on second person scenarios, the animal learns that just because there are two people present it does not mean something bad will happen. You will help with this by doing what a veterinary technician would do. The trainer will place the animal in the correct position and then you will rub the animal down looking for cuts or scrapes. You may also be asked to palpate the animal (look for a vein) and press down with your fingertip as if you were taking a blood sample. This is beneficial to the staff and gives the intern a chance to work very closely with the animals.

After the health and husbandry behaviors are well established, you may be allowed to free feed the animals. In a free feed all the animal has to do is station (come to its designated eating spot) and stay still. This makes the intern a positive thing in the animal's environment and it gives the intern a chance to see how the animal should normally behave when being fed. Once you know how an animal normally behaves, you will be better able to pick out when the animal is acting abnormal. Animals have abnormal eating habits for many reasons: when they are sick, hungry, or even when they are getting to much food.

After free feeding you can usually expect to learn hand signals or verbal cues to ask for behaviors. This, however, will only happen at a facility that does behaviors with their animals. There will still be lots of trainer supervision during this time and the intern's coach will still be needed to bridge the animal. A bridge is a verbal cue or whistle tone that tells the animal, "good", a reward is on the way, and that they can stop the behavior. After hand signals are learned, the intern will be expected to learn when to bridge behaviors and then will be able to feed and ask for behaviors on his/her own. Surprisingly, the hardest part of this cycle is learning how to make the bridge sound. It seems like an easy thing to do, just blow on a whistle, but it does take some practice to produce a quick, clear bridge.

Advancement

Internship Steps

At the Indianapolis Zoo there were steps that an intern had to complete before they were able to move on to the next set of experiences. These steps are very important. They allow for the intern to slowly be worked into what they can do, and it also cuts down on competition between interns because no one is being allowed to do things at a faster rate than anyone else. The steps are not included in this paper because they were not obtained from the Indianapolis Zoo. The steps started with basic knowledge about cleaning and the animals. The next step involved helping out with second person health and husbandry behaviors. The first major item that had to be completed was being able to narrate one of the shows. After this we were allowed to learn hand signals and asking for behaviors.

Advancement Through The Field

Marine mammal trainers have a very competitive job. First, there are very few places that house marine mammals and they are only taken care of by a small staff. Second many marine mammal trainers stay in their positions for the length of their careers. Unlike other jobs where many employees move up in position, many marine mammal trainers do not wish to enter management positions. They receive a salary averaging between \$30,000 and \$40,000 a year (Thomas and Odell, 2003).

New staff has a list of steps that they have to go through. The details of those steps can be found in the appendix. These steps serve the same purpose that the intern steps served. It allows for guidelines of what new people can do. This helps slowly work the person into

the position. It also gives the staff and animals time to get to know the new member of the team.

After a new hire has passed through all of the training steps, they become an assistant trainer. Then they pass through another series of steps to move from assistant trainer, to trainer, to senior trainer. There are even requirements to stay at the senior training level. The complete list of these steps can be found in the appendix. Most of them consist of a few required skills and then some electives that the person can pick from. The approved electives are not provided in this paper, but they consist of things like making appropriate enrichment devices, advanced scuba diving certification, research, or training new behaviors.

Training

Training is an important part of any marine mammal job. Many of these animals are very adapted at holding their breath underwater; this poses a problem if anesthesia were required every time they needed to be looked at by a vet. If an animal is able to hold its breath for ten to twenty minutes, it becomes very hard to determine how much anesthesia they have actually inhaled. For this reason, many marine mammal facilities choose to train their animals in at least basic health and husbandry behaviors and many places train show behaviors as well.

Training is obtained using a process called operant conditioning (Kuczaj and Xitco, 2002). The animals are reinforced for behaviors the staff is looking for and ignored for behaviors the staff is not looking for (Kuczaj and Xitco, 2002). The primary reinforcement is usually food and secondary reinforcement can range from a rubdown, toys, to other visual, auditory, or tactile stimulation (Busch Entertainment Co., 2002).

So how do we communicate with marine mammals? Many understand vocal cues, but some, like the bottlenose dolphin require a non-verbal signal. Verbal signals should be kept to one or two words and to single syllables (Young and Cipreste, 2004). For non-verbal signals a whistle is usually used; these need to be kept to a short, crisp tone.

Whatever the signal is, it is called a bridge (Busch Entertainment Co., 2002). The bridge is used because it is very important to reinforce a behavior while it is happening (Busch Entertainment Co., 2002). You can imagine, however, how hard this would be while a dolphin is mid jump twenty feet into the air. So a bridge is used to signal the animal that, "That is the behavior I am looking for" (Busch Entertainment Co., 2002).

Before any training of behaviors can take place, the animal must be trained to associate the bridge with being reinforced (Busch Entertainment Co., 2002). This is accomplished by presenting the bridge and then giving the animal a food reinforcement; this needs to be done every time the animal is fed until it learns that the bridge means food is on the way (Busch Entertainment Co., 2002).

After the animal understands what the bridge is for, behaviors can begin to be trained. The first behavior that is usually trained is targeting. The first step in targeting is to touch the target pole (or the trainer's hand) to the animal's nose and to sound the bridge; the animal then gets a food reward (Busch Entertainment Co., 2002). After a few repetitions, the target pole can be placed a few inches away from the animal. If the behavior has been reinforced correctly, the animal should lean forward and touch the end of the pole, because it is expecting to be reinforced for touching the pole (Busch Entertainment Co., 2002). As soon as the animal touches the pole it should be bridged and reinforced. The target pole can then be placed further and further from the animal. After this is accomplished it is time to train the animal to hold its nose to the target pole until it hears the bridge. This is done by waiting a few seconds after the animal touches the pole and then bridging; this gap can slowly be made longer and longer (Busch Entertainment Co., 2002). After the animal has correctly learned to target using its nose, the animal can be trained to target with other body parts.

More complex behaviors are learned through a process called shaping (Busch Entertainment Co., 2002). Shaping refers to breaking a larger behavior down into smaller parts (Busch Entertainment Co., 2002). An example of this would be training a dolphin to spin in the air. After it is trained to target at the surface of the water, the target pole can be raised up in small increments until the dolphin has to jump out of the water to hit the target

pole. Then the trainer can spin the target pole in a circle as soon as the dolphin touches it; this motion should cause the dolphin to rotate its body in the air to keep contact with the target pole. After this behavior is learned, the trainer will slowly start to pair a hand signal with the behavior. This is done by presenting the hand signal and leading the animal through the steps using the target pole. After a while, it will associate the hand signal with the behavior (Busch Entertainment Co., 2002). The target pole can then be slowly taken out of the process and what remains will be the behavior happening on hand cue (Busch Entertainment Co., 2002).

What happens when an animal responds with a behavior the trainers are not looking for? Punishment really is not a good response, because we do not want the animal to start to fear us (Busch Entertainment Co., 2002). So a trainer will stand very still and not talk to the animal, and usually tries not to make eye contact. This is done because the trainer does not know what will reinforce a behavior the animal is making, so by remaining motionless and quiet the animal should not be reinforced (Busch Entertainment Co., 2002). After three seconds the trainer will resume the training session (Busch Entertainment Co., 2002).

Animal Research

Atlantic Bottlenose Dolphins—*Tursiops truncatus*

Atlantic Bottlenose Dolphins are 8-12 feet in length and weigh as much as 1,430 lb (American Cetacean, 2004). They display counter shading and have three sets of fins or flippers. The fin on the middle of their back is called the dorsal fin. The flippers are located on either side of their body and the fluke is the strong tail fin. All three of the fins serve a different purpose. The dorsal fin has been thought to be used for thermal regulation and to help with stabilization (Mead, 2002). The flippers are used for steering and the fluke is the power which allows the animal to swim. They are easily determined from porpoises by their teeth; dolphins have needle-like teeth, while porpoises have spoon-shaped teeth (Mead, 2002). Dolphin's teeth can even be used to tell how old it is. They display growth layers on their teeth each year; so by removing one and counting the rings, you can tell the age of the dolphin. They also have very excellent eye sight both in and out of the water and superior hearing (Mead, 2002). Dolphins use echolocation to create a mental picture of their surroundings. They send out a series of clicks that bounce off of items and return to the dolphin's lower jaw. The signal is then sent to the middle ear and the sound wave is processed in the brain to create a mental picture (Sea World, 2002).



Bottlenose Dolphins cover a wide range of habitat. They are found all over the world from the equator to 45 degrees latitude (American Cetacean, 2004). The only place they are not found is in the cold arctic regions of each pole. They are very social animals forming small groups or pods throughout their lives. Most pods consist of mothers and their young (Mead, 2002). Female babies tend to stay with their mothers all of their lives, while males will break

off after three to six years and form their own pods with other males. Whales and dolphins are also the only marine mammals that will mate for reasons other than procreation (Mead, 2002). Their breeding season does last year round, with females reaching sexual maturity between five and ten years old and males averaging around ten years old. The gestation period is 12 months long with nursing lasting 12-18 months (American Cetacean, 2004). In captivity bottlenose dolphins can live up to 46 years, but majority only average 20 years (Sea World, 2002).

In zoos these animals have a very open interaction with zookeepers. They are hand fed three to five times a day and worked with daily on behaviors. There are also many places where the public can go to have in-water interactions with the dolphins. This is where they can get in waist deep water or even swim with the dolphins, feed them, and ask for behaviors. The only time interactions between dolphins and staff are limited is during tank cleanings. In most facilities dolphins can react aggressively to scuba divers because of the bubbles they produce, so for the safety of the staff, tanks are only cleaned with the dolphins being confined to another section.

Since these animals are very intelligent, enrichment can be very amusing. Play sessions are especially fun with younger dolphins. They love to have water squirted into their mouths so a simple hose or bucket can provide hours of fun. They will also retrieve play items from the pool and toss them out of the water so that staff can toss them back in.

The behaviors these animals can learn are probably well known to everyone. Almost every marine facility that houses Bottlenose Dolphins also performs some type of show with them. Even from a very young age these animals can be trained to do jumps, spins, and vocalize on hand cue. As they get older and stronger then can be taught to do flips, tail walks,

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and high target jumps. Surprisingly most of these behaviors are very easy to train and some of the dolphins even learn them by watching their mothers or other relatives.

Polar bears—*Ursus maritimus*

Polar bears range in both height and weight but are usually eight feet tall and can stand up to 11 feet tall on their hind legs. Males weight around 1,600 pounds, while females are usually around 600 pounds. The common misconception about polar bears is that their fur is white; in reality it is really translucent with black skin underneath (Marine Mammal Center, 2001). Polar bears also have very excellent eye sight and a great sense of smell.



According to the Marine Mammal Center, polar bear's are found in the Northern regions of Canada, Alaska, and Russia (2001). They are also found in the smaller landmasses near the arctic circle. Polar bears usually gather near Arctic coastlines and ice flows, but they have been spotted in the ocean as far as 600 miles from land (Marine Mammal Center, 2001).

Polar bears are very solitary animals usually only coming together for mating season. Ovsyanikov has found that, while polar bears are solitary hunters they will allow others to share their kill with them (1996). While an older polar bear is enjoying his/her kill, it has been witnessed that teenager polar bears, who have not yet started to hunt for themselves, but who are no longer with their mothers, were able to come up and eat some of the older polar bear's kill. Ovsyanikow, however, has observed that there are social rules to this type of sharing (1996). If another bear was interested in the kill, it had to ask the "owner" for permission. This usually involved a bear coming near the carcass in a slow gentle approach, making a circle around the carcass, or even a nose-to-nose greeting with the "owner" (Ovsyanikow, 1996). Researchers have found that this type of cooperative sharing does have a benefit for the polar bears. Polar bear's main choice of food is seal, but they have also been known to eat walruses. It is possible for a polar bear to take down a walrus, but it

can then take them hours to chew through the skin (Ovsyanikov, 1996). With cooperative sharing two or three polar bears are able to open the carcass quite quickly and get to the meat inside (Ovsyanikov, 1996).

In a zoo setting these can be very exciting animals to work with. They are only worked with through protective contact. This means that there are always bars or some other barrier between the keeper and the animal. Out of all of the marine mammals, however, polar bears are able to eat the widest range of food. Food is generally used as enrichment for the animals and with polar bears there are lots of different options. At the Indianapolis Zoo, polar bears are able to eat everything from bread, jelly, peanut butter, fruits, veggies to even hard boiled eggs. These items could then be placed around the exhibit to encourage foraging or they could be placed in containers with water and frozen to make ice toys. All of this was done to mentally stimulate the animals so they would not get bored on exhibit or in holding.

Other enrichment toys these animals got were pools to play in and various large plastic toys. Because of their very sensitive sense of smell, perfume was often used as an enrichment device. It was simply sprayed around their enclosure and then the bears spent a great deal of time trying to track down the smell. They also seemed to enjoy when drawings were placed on the inside of their holding areas with chalk, they would always spend a few minutes looking anything new that was up on the walls.

These animals can also be taught to perform various behaviors on hand cue. At the Indianapolis Zoo, polar bears had learned to do paw presents, open mouths, double paw presents (where they would stand on their hind legs and lean both front paws on the bars), they were also taught to sit and lay down on command.

Pacific Walrus—*Odobenus rosmarus divergens*

The Pacific Walrus is one of the biggest marine mammals you could possibly work with. Adult males range from 10-12 feet in length and can weight any where from 2,200-3,300lbs. Females are typically much smaller ranging from 9-11 feet and weighting between 1,760 and 3,000lbs. The interesting part about walruses is that if a male is ten feet in length he can also be ten feet around his midsection (Brookfield Zoo). Most of their weight does come from the layer of blubber that keeps them warm; this can be up to six inches thick in some areas (Brookfield Zoo). Some other unique characteristic of walruses are their tusks. Both males and females have tusks and their Alaskan name actually translates into “Tooth Walker” (Reeves et al., 2002). The main purpose of the tusks is to help the walrus pull its body out of the water and up onto the ice. The walrus’s tusks are very similar to human teeth in that they grow in as the pup gets older. At many zoos you will find that their walruses do not have tusks, this is because they have been removed for medical reasons. Many zoos have had problems with walruses rubbing their tusks on the exhibit. This can cause the tusks to develop holes in them and since the tusks extend up into the brain cavity, an infection in the tusks could potentially be very dangerous. The walrus’s whiskers also have a unique purpose: they use them to feel around on the ocean floor for food. Walruses also have a very strong suction power; they can hold a clam in their lips and suck the clam out of its shell.



Pacific Walruses are only found on a small portion of the globe from the Bering Sea Coast to Alaska and the North Pole (Brookfield Zoo). Probably the best time to see these animals in their natural habitat is at breeding time during January or February when they haul out on rocky shores. This is also the only time that males and females will be seen together in

the wild (Brookfield Zoo). After breeding females have a gestation period of 15 months and then they can nurse for up to 2 ½ years (Reeves et al., 2002).

At the Indianapolis Zoo, walruses have a pretty interesting diet. They are fed herring, capelin, and clams on a daily basis. Then once a week they receive both squid and oil. They are also fun to work with because it always amazes people that a 3,000lb animal can be trained. The Pacific Walruses, at the Indianapolis Zoo, had a wide range of behaviors: vocals, waves, spins, spit, shame, kiss, and all of the health and husbandry behaviors the other animals learn. The toys they were given for enrichment were usually the big plastic play toys children have. They have a few plastic chairs a child could sit in, along with a plastic slide. They also would play with huge boomer balls.

California Sea Lion—*Zalophus californianus*

California Sea Lions can range from six to seven feet long with males weighing close to 1,000lbs and females weighing around 220lbs (Marine Mammal Center, 2002). They have external ear flaps and modified front flippers that allow them to move very easily on land. Males also develop a sagittal crest, which is basically a large hard lump on their forehead that helps protect them when fighting with other males (Reeves et al., 2002). They can be distinguished from the other eared seals by the fact that male California Sea Lions lack the mane that is common to other species (Reeves et al., 2002).



California Sea Lions can be found from Vancouver Island, British Columbia to Baja California in Mexico (Fort Wayne, 2005). They are very social animals, usually found swimming in packs or laying on the rocky shores huddled together (Fort Wayne, 2005). They also have amazing diving abilities; the longest and deepest recorded dive was 1,760 feet for 12 minutes (Reeves et al., 2002).

Females give birth around June or July and nurse for five to six months. Breeding season then takes place again a few weeks after the females have given birth (Marine Mammal Center, 2002). After giving birth, mothers will spend about 10 days on shore with their pups, after that they start foraging in the sea again, leaving their pups in large groups on shore to play (Reeves et. al., 2002). Mothers are able to recognize their pup among the thousands of other sea lions on shore by distinct vocalizations (Reeves et. al., 2002).

California Sea Lions have an intelligence approximately equal to that of dogs (Fort Wayne, 2005). This is the main reason that they perform in zoos around the world. They can

be trained to do many different types of behaviors from natural behaviors like vocalizations, porpoising, and touching their nose to their back; to more show behaviors like waves, shading the sun from their eyes, and kisses. They can be given a wide range of toys for enrichment; basically anything that would be appropriate for a human child age birth to two years would be fun for them.

Harbor Seal—*Phoca vitulina*

Harbor Seal's are considered part of the true seal family because they have no external ear flaps (Reeves et al., 2002). The average weight of adults is 180lbs and they are usually five to six feet long (Kinkhard and Pitcher 1994, Marine Mammal Center 2001). They are covered with hard bristle-like hair that can range in color from yellow, to silvery white, to black; but is always spotted (Kinkhard and Pitcher, 1994). The white coat, however, is only found on seals that have been born premature, in full term seals this coat is lost before birth (Marine Mammal Center, 2001).



Harbor Seal's can be found in both the Atlantic and Pacific Oceans, but they are only found north of the equator (Marine Mammal Center, 2001). Females usually give birth every year between March and April, and pups are nursed for about four weeks (Marine Mammal Center, 2001). Shortly after weaning, females breed again. They, however, exhibit delayed implantation where the embryo will not become attached to the uterine wall for about 11 weeks (Reeves et al., 2002). Gestation period is then 8 ½ months after implantation (Kinkhard and Pitcher, 1994). After pups are weaned, Harbor Seals tend to be non-social animals and are only seen together during breeding or molting season when many seals may haul out on the same sandbar or beach (Reeves et al., 2002).

In the water Harbor Seal's are very agile using their back flippers to propel themselves through the water. On land however, they rely on their strong stomach muscles to move around. In the water they have been known to dive down as far as 600 feet and can stay under for up to 20 minutes (Kinkhard and Pitcher, 1994).

At the Indianapolis Zoo, the harbor seals were fed two types of fish--herring and capelin. Since we had older seals, eighteen years old, they were not very playful with toys or other enrichment devices, but they were taught a few fun behaviors. While I was there, my coach was working on teaching one of them to salute; where she would touch her flipper to her head and hold it there on command. Because of their limited movement on land, it is difficult to come up with show behaviors to teach them.

Classes that Relate

In order to work with marine mammals it is advisable that you have a major in psychology. It is also helpful to have a minor or major in biology. This will give you the knowledge you need to know about training, but will also help you understand the biology of the animals you are working with. There are many classes that are helpful to a marine mammal trainer. I've included those classes that I have taken along with a short description of how they were helpful with my internship.

Psychology Classes

Introductory

This class is the foundation for understanding every other psychology class you will take. It is very helpful in an animal care field because you spend a lot of time going over learning strategies. Classical conditioning and operant conditioning are the foundation for training animals.

Statistics

Statistics is an important subject to understand because there are many people out there doing research; and the job of many zookeepers is to keep up on current trends in enrichment, habitat, and nutrition. It is important to understand statistical measures so that you can understand the latest research.

Research methods

Research methods follows statistics and is important for the same reasons.

Zookeepers need to be able to understand and critically interpret the latest research,

and at most facilities zookeepers may even be involved in their own research. Some facilities require senior trainers to publish research work.

Comparative Psychology / Animal Behavior

This class takes everything you have learned about human psychology and applies it to animals.

Motivation and Emotion

This class teaches you about an animal's motivation to perform behaviors. This is important for zookeepers to be aware of because food is not the only motivating factor for animals and sometimes it isn't even the principal motivating factor.

Developmental Psychology

While animals and humans do not develop at the same rate, having some idea about human development can make it easier to understand animal development. Zoos across the country are involved in breeding programs and it is helpful if new hires have some idea about how mammals develop.

Learning

What you learn in this class is the basis for all training that will take place at a zoo. Most of the training in zoos will focus on classical conditioning. The other methods you learn in this class, however, will be helpful if you are ever in a position where you

are training new hirers or interns. Where as animals really only learn through rewards and punishment, humans have a variety of ways they can learn.

Cognition / Physiological Psychology

Understanding how the brain works is very important in animal care. If you can't understand what parts of the brain do what, then you are missing a major part of how animals function. Having this knowledge is also helpful if an animal gets sick and you are working with veterinary staff.

Abnormal Psychology

Many of the disorders people develop (especially the anxiety disorders) captive animals also display. By knowing more about what causes certain disorders, zookeepers are better able to prevent them from happening or to cure them once they do develop in their animals.

Primates

This class gives an in depth look at how primates function. While marine mammals are not primates, this class does help you see the connections between animals and humans. It can also broaden your horizons and may help you to discover other types of animals you would like to work with some day.

Biology Classes

Basic Biology

This may be a series of classes, one covering cellular biology and one covering the animal kingdom. Cellular biology is important because having an understanding of organisms on the cellular level, helps you better understand diseases. It also helps to understand how organisms work. Understanding the animal kingdom is important because it helps organize the animals into phylum and classes. This helps you learn the relationship, between the animals you are working with.

Zoology Classes

Structure and Development of Vertebrates

This class delves deeper into the relationship between vertebrates than basic biology. It is helpful to understand the higher order vertebrates you will be working with and to understand the relationship between them. It also involves a lab with dissections. This will help you understand the inner workings of the animals even better.

Animal Parasitology

This class deals with parasites that occur in humans and primates. This is a good class to explore the possibilities of other animals you could work with. Primates, like marine mammals, are very trainable, and by training them you can make veterinary procedures less stressful, because the animal will be fully cooperating with what you need it to do.

Mammalogy

This class focuses more specifically on the relationship, between mammals. It follows Biology 112 and Structure and Development of Vertebrates 330, and like those classes will help you understand the evolutionary and behavioral development of the animals you are working with.

Honors Classes

Cultural Anthropology

The world is becoming more culturally diverse every day. When working with the public, it is always beneficial to have some idea of culture differences. This class is good at highlighting some of the differences among the non-western cultures.

Physical Education Classes

Basic Scuba

Most marine mammal facilities require that new hires be scuba certified. Taking this class over a semester instead of a weekend class from the local YMCA, does have many benefits. One, it gives you elective credits. Two, you spend a lot more time learning the material, so even if you don't dive a lot, you will remember how to dive much longer.

First Aid and CPR

Since you will be working in a public situation and with other people, being certified in first aid and CPR is never a bad idea. Also many facilities make this one of the requirements to advancing within the field.

Journalism Classes

Information Gathering

To do effective research, you have to be able to find information from different sources. This class teaches you how to find news articles, magazines, government sources, and internet sources. It also teaches you how to evaluate the sources you find for content and biases.

Journalism Writing

This class will help you with your writing skills. Not only do trainers keep records every day, but by having a strong journalistic writing style you may get hired over someone else. There are many press releases, news letters, and Web sites that need to be developed and in smaller zoos and aquariums it may be the trainers themselves who are publishing these items.

Intro to Photojournalism

Getting a job as a marine mammal trainer is all about being better than the hundreds of other applicants. One way to set yourself apart from everyone else is to bring a different skill to the team. Many zoos are now connected to the internet or other publications and are always looking for someone that can take good photos, by

having this skill you may get hired over someone that can not offer something extra to the team.

Intermediate Photojournalism

This class is just a continuation of introduction to photojournalism and focuses on digital photography.

Related Books, Articles, and Web Sites

These are some of the books that I found most helpful in my search for the dream job. Some of them are directly related to working with marine mammals, while others are about how to write resumes and cover letters, and still others I found to be very good reference items.

Glen, T.B. III. (1997). *The Dolphin and Whale Career Guide*. Chicago: Omega/Publishing Division.

This book was also used as a resource for this paper, and it is being placed here again to emphasize the extent of information it has. Any one who is looking in to a career in a marine mammal field needs to read this book. It gives many statistics and tells the flat out truth about what you can expect from this type of job. Its value as a resource is that it includes almost all of the marine mammal facilities across the United States and also includes detailed information about their programs.

American Zoo and Aquarium Association Web Site: <http://www.aza.org>

This is the leading group in zoo and aquarium care. Their Web site offers information about programs being offered, conferences, and much more. Zoos around the United States and some international zoos post their job openings on this web site. Extended information about careers and current research are also offered to their members, memberships are \$60.

International Marine Animal Trainer's Association Web site: <http://www.imata.org>

The information on this site mostly is only reachable by members, but they do offer student discounts on membership (\$40 a year). Members can have access to job listings, professional conferences, and much more.

Kursmark, L.M. (2003). *Best Resumes for College Students and New Grads*. Indianapolis: JIST Publishing, Inc.

If you need any help on writing resumes or cover letters, this is a really good book to look at. They give examples for many different types of fields. It gives you a good idea of different information you can include and unusual types of layouts.

Reeves, R.R, Stewart, B.S., Clapham, P.J., and Powell, J.A. (2002). *National Audubon Society Guide to Marine Mammals of the World*. New York: Alfred A. Knopf.

This guide offers information on all the different types of species of marine mammals. It gives short descriptions of about two pages for each animal, but it offers all of the basis information that guests at a zoo would want to know about the animals they are watching.

Meyer-Holzapfel, M. (1968). Abnormal Behavior in Zoo Animals. In Fox, M.W. (Eds.), *Abnormal Behavior in Animals* (pp 479-501). Philadelphia: W.B. Saunders Company.

I suggest this article because it offers a wide range of information on the abnormal behaviors that animals in zoos portray. What is even more helpful is that the article defines abnormal as any behavior that does not commonly occur in free ranging

animals. With more and more zoo's trying to present a realistic interpretation of an animal' habitat and not simply placing them in cages, it is important to recognize clues the animal gives when the habitat is less then adequate.

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Zoos and Aquariums

Display Facilities:

[Thomas B. Glen III & AZA web site]

Sea Life Park

California

Aquarium of the Bay
Aquarium of the Pacific
Birch Aquarium at Scripps Inst. of
Oceanography
Cabrillo Marine Aquarium
Knott's Berry Farm
Long Marine Lab
Miami Sequarium
Monterey Bay Aquarium
Seal World of California
Six Flags Marine World
U.S. Navy/SAIC

Colorado

Landry's Downtown Aquarium - Denver

Connecticut

Mystic Marinelife Aquarium

Florida

Bermuda Aquarium, Museum and Zoo
Busch Gardens
Clearwater Marine Aquarium
Dolphin Connection
Dolphin Research Center
Dolphins Plus
Epcot Living Seas
The Florida Aquarium
Gulf World
Gulfarium
Marineland of Florida
Mote Marine Aquarium
Sea World of Florida
Theater of the Sea

Hawaii

Dolphin Institute
Dolphin Quest
Hawaii Institute of Marine Biology
Kahala Mandarin Oriental Hotel

Illinois

Chicago Zoological society
John G. Shedd Aquarium

Indiana

Indianapolis Zoo

Kentucky

Newport Aquarium

Louisiana

Audubon Aquarium of the Americas

Maryland

National Aquarium in Baltimore

Michigan

Belle Isle Aquarium

Minnesota

Minnesota Zoo

Mississippi

Marine Animal Productions

Nevada

Mirage Dolphin Habitat
Shark Reef at Mandalay Bay

New Jersey

Adventure Aquarium

New York

Aquarium for Wildlife Conservation
New York Aquarium

North Carolina

North Carolina Aquarium at Fort Fisher
North Carolina Aquarium at Roanoke Island

Ohio

Cedar Point
Sea World of Ohio
Columbus Zoo and Aquarium

Oklahoma

Oklahoma City Zoo

Oregon

Oregon Coast Aquarium

Pennsylvania

Hershey Park
Pittsburgh Zoo

South Carolina

Ripley's Aquarium
South Carolina Aquarium

Tennessee

Ripley's Aquarium of the Smokies
Tennessee Aquarium

Texas

The Dallas World Aquarium
Houston Aquarium, Inc.
San Antonio Zoological Gardens &
Aquarium
Sea World of Texas
Texas State Aquarium

Virginia

Virginia Aquarium & Marine Science
Center

Washington

Point Defiance Zoo and Aquarium
Seattle Aquarium

Resume Sample

Erin M. Tschida

Emtschida@bsu.edu

Campus Address

Ball State University
Whitcraft Hall Box 555
Muncie, IN 47306
(765) 555-555

Permanent Address

55555 Northern Ave.
South Bend, IN 55555
(574) 555-555
cell: (574) 555-555

Education and Academic Honors

Ball State University, Muncie, IN
Bachelor of Science in psychology & minor in biology and sociology
Date of Graduation: May 2007

- Dean's list all semesters (4)
- GPA: 3.857 / 4.0
- National Society of Collegiate Scholars, Spring 2003

Related Experience

Potawatomi Zoo Internship – Volunteered: South Bend, IN May 2004-August 2004. Approximately 20 hours a week.

- Performed regular zookeeper duties to care for reptiles and small primates.
- Created enrichment activities for the animals weekly.
- Filled in when ever there was a need in the schedule.

Animal Rescue Fund -- Volunteer at the Muncie, IN, chapter, fall 2003-spring 2004.

- Provided weekly exercise by walking the animals
- Socialized the animals to humans

Work Experience

Sales and Customer Service-- Worked part time at Ritz Camera, South Bend, IN, fall 2000-summer 2004 (fall 2002-summer 2004 during breaks only)

- Explained and demonstrated technical products in lay terminology to prospective buyers.
- Worked in the one-hour photo lab

Potawatomi Zoo Admissions & Zoo farm—Worked part time, South Bend, IN, July 2004 – August 14, 2004

- Took care of goats, alpacas, a pig, and a bull
- Sold zoo memberships and handled general questions and problems

Additional Information

- Scuba diving certified May 2004
- Skilled at digital photography
- Proficient in Microsoft Excel, Adobe Photoshop and InDesign

Cover Letter Sample

Erin M. Tschida

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September 23, 2004

Mr. Joel Vanderbush
Manager, Volunteer Services
Indianapolis Zoological Society
1200 West Washington Street
Indianapolis, IN 46222

Dear Mr. Joel Vanderbush:

Last summer I spent twenty hours a week working with the small primates and reptiles at the Potawatomi Zoo in South Bend Indiana. After that experience I was even more determined to make animal husbandry my career. The next step towards this goal is working for the Indianapolis Zoo. I am interested in an internship this summer at the Indianapolis Zoo in the Marine Mammals Area.

I learned about this internship program from searching your Web site. I was trying to find different zoos and centers that had internships working with dolphins. Your program caught my eye because it is dedication to teaching conservation to the public and to preserving the animals' natural habitat with the biomes.

With this internship, I am hoping to learn the day-to-day procedures that animal care workers go through. I also want to learn about the educational programs that the Indianapolis Zoo offers and work with the public to teach them about what they can do to help protect these animals.

I know that animal training is a competitive field, so right now I am looking to gain experience working with animals that will make me a better prepared applicant after college. Through this experience, I am hoping to learn the hands-on information that I cannot learn in school and to make important contacts in the animal care field.

Thank you for taking the time to look at my application, and I look forward to meeting with you for an interview.

Sincerely,

Erin Tschida

Erin M. Tschida

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April 9, 2004

Greg Bockheim
Director
Potawatomi Zoo
500 S. Greenlawn Ave.
South Bend, IN 46615

Dear Mr. Greg Bockheim:

Growing up in South Bend I have found myself visiting the Potawatomi Zoo for many different reasons. I have always been fascinated by the animals there. I can sit and watch many of them for hours on end just thinking about why they do what they do. Ever since I was little and would go to the Zoo on field trips I knew I wanted to work with animals some day. I am interested in an internship this summer at the Potawatomi Zoo, so that I can start my career in animal husbandry.

Through this internship, I hope to learn the day-to-day operations of a zoo. I am looking to gain valuable experience that will make me a competitive employee in this field. I am looking to learn the important information that I cannot learn in school as well as make important contacts in the animal care field. I am also looking forward to working with the public to teach them about conservation efforts they can do to help protect animals across the country.

When it comes to what animals I would like to work with, I am flexible, but would prefer to work with mammals. I have always been interested in monkeys and felines. The experience, however, I would receive from working with any of the large mammals would be invaluable.

Thank you for taking the time to look at my application, and I look forward to meeting with you for an interview. I am available for an interview April 23-25, April 30-May 2, or anytime after May 10. I hope one of these dates will work for you.

Sincerely,

Erin Tschida



MARINE MAMMAL INFORMATION PACKET

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Marine Mammal Collections List

Seal/Sea Lion Exhibit

Harbor Seal (*Phoca vitulina*) 0.3

California Sea Lion (*Zalophus californianus*) 2.2

Polar Bear Exhibit

Polar Bear (*Ursus maritimus*) 1.2

Walrus Exhibit

Pacific Walrus (*Odobenus rosmarus divergens*) 2.2

Dolphin Pavilion

Atlantic Bottlenose Dolphin (*Tursiops truncatus*) 1.6

Marine Mammal Area Tour

Seal/Sea Lion Exhibit

Harbor Seal (*Phoca vitulina*)

California Sea Lion (*Zalophus californianus*)

How deep is the pool? What is the temperature? The pool is twelve feet deep and contains 120,000 gallons of salt water. The water temperature is kept at a constant 60-65 degrees Fahrenheit.

Who's making all that noise? That would be the sea lions. Harbor seals are not very vocal and occasionally make a snorting sound. Sea lions are very vocal making barking sounds and guttural roars.

Harbor Seal Questions:

How many do you have? What are their names? When were they born? We have three female harbor seals: **Phoca, Tak, and Lucy**. Phoca was born in March of 1985. Tak was born in June of 1988. Lucy was born in June of 1987.

How do you tell them apart from the Sea Lions?

One way to tell the harbor seals apart from the sea lions is the coloration of their coat. Harbor seals tend to have a somewhat spotted pattern. Another way to tell them apart is by their body size. Harbor seals are smaller than adult sea lions, weighing between 130 to 160 pounds.

Sea Lion Questions:

How many do you have? What are their names? When were they born? How much do they weigh?

Marcy and Snapper- Marcy and Snapper are adult female California sea lions. They were both born in June of 1987 at Sea World of Ohio and moved to Indianapolis in 1988.

Vito- Vito is an adult male California sea lion. He was born 6/10/97. He came to Indianapolis in September 2002 from Six Flags Worlds of Adventure theme park in Cleveland, Ohio.

Diego – Our young male was born here at the Zoo on 6/21/04. Marcy and Vito are his parents.

Why does Vito look so different from the females?

Due to the dimorphism in sea lions, Vito is much larger than Marcy or Snapper. As he reaches full physical maturity, the shape of his head will change as his sagittal crest develops.

What is a sagittal crest?

Male sea lions have a noticeably raised forehead that is the result of an extremely high sagittal crest on the skull. The crest can be as high as 4cm in height. It begins to grow in the animal's fifth year but does not become fully developed until the animal is ten years old. Often times, the hair over the crest is a lighter blond color.

How much do they weigh?

Vito weighs around 400 lbs. and is just over 6 ft. in length. He can grow to over 800 lbs. and 8 ft. in length. Adult females are quite a bit smaller than the males, weighing between 220 and 250 pounds.

How do you tell them apart from the Harbor Seals?

Sea lions propel themselves with their front flippers, which are large, and steer with their rear flippers, which are smaller. Harbor seals propel with their rear flippers and steer with their front and both sets of flippers are about the same size. Sea lions also have external ear flaps and harbor seals do not.

Differences between Harbor Seals and Sea Lions:

	Harbor Seals	Sea Lions
Coloration	White or light gray with dark spots; others are black or dark gray with white spots	Pups are born dark brown to black, then molt into lighter brown. Adult females are light brown, adult males slightly darker
Weight (average)	Males ~5ft. long; weigh ~250 lbs. Females ~4ft. long; weigh ~150 lbs.	Males ~8 ft. long; weigh ~ 860 lbs. Females ~ 6.5 ft. long; weigh ~ 240lbs
Diet in the wild	Herring, cod, flounder, octopus, shrimps	Herring, pacific whiting, salmon, squid, octopus
Diet at the zoo	Herring and Capelin	Herring and Capelin
Ear Structure	No external ear flaps. Have pinhole sized ear openings. Harbor Seals are also called true or earless seals.	Have small external ear flaps called pinnae.
Movement on land	Inch along ground using strong stomach muscles – similar to a caterpillar.	Can rotate their hips and walk on all four flippers.
Movement in water	Propel themselves through the water with their hind flippers and use front flippers to steer.	Propel themselves through the water using their front flippers and use hind flippers to steer.
Ancestors	Believed to have descended from Mustelid family – modern examples include otters and weasels	Believed to have descended from the Ursid family – modern examples are bears
Migration	Non-migratory; local movements only	Long-distance seasonal migrations – males travel north after breeding

Vocalizations	Relatively non-vocal. Occasionally make a snorting noise.	Very vocal making barking sounds and guttural roars. Females use their vocalizations for many different reasons including to identify themselves to their pup.
Specializations	Can dive deep (up to 600ft.) and hold their breath for 20-30 minutes.	Rotatable back hips allow for easy movement. Can dive to depths of 450-1000ft. and hold their breath 15-20 minutes.

Delayed Implantation -- what is it?

Delayed implantation allows the female to breed at regular yearly intervals and also give birth during the more favorable times of the year. Once the egg is fertilized, the embryo remains in the blastocyst stage for quite a while. What this means is the embryo is alive but not developing, it is in a state of suspension. After several months, the egg implants itself into the uterine wall and fetal development begins.

Polar Bear Exhibit

Polar Bear (*Ursus maritimus*)

Polar Bear Questions:

How many do you have? What are their names? When were they born?

We have three Polar bears.

Tundra is a female and has resided at the Indianapolis Zoo since it opened in 1988. She was born in November 15, 1986 at the San Diego Zoo. Tundra weighs nearly 650 lbs.

Triton is a male. He was born on November 5, 1997 at the Roger Williams Park Zoo and came to Indianapolis in 2004 from the Detroit Zoo. Triton weighed 768 lbs. when he arrived from Detroit.

Trixie is Triton's mother and is coming from the Roger Williams Park Zoo in Providence, Rhode Island. She was born on November 23, 1986 at the Bronx Zoo. She will be staying in Indianapolis until 2007 while her exhibit is being renovated.

How much do they weigh?

Tundra weighs around 700 pounds. Triton weighs approximately 770 pounds. Male Polar bears can grow to be quite large, weighing over 1100 lbs. Females tend to be smaller than the males.

How deep is the pool? What is the temperature? The pool is nine feet deep and contains 70,000 gallons of freshwater. The water temperature is kept at a constant 60-65 degrees Fahrenheit

Special Characteristics:

Movement on land	Must have good traction on ice and snow. Their large front paws (~12" in diameter) distribute their weight evenly like snowshoes. This allows them to cross even thin sheets of ice. They also have black footpads, along with non-retractable claws, that provide traction. This enables them to run for short distances up to 25mph.
Movement in water	They use their large front paws to propel themselves through the water in an oarlike fashion. They use their hind legs to steer. They are able to swim up to 6mph, can stay under water for up to 2 minutes, and dive at an average depth of 12 feet.
Breeding Season	Breeding occurs on the sea ice between April and May. Males actively search out reproductive females. Usually the pair remains together for one

	week, breeding numerous times during that time frame. Males can use their excellent sense of smell to locate a receptive female. They can smell one up to 20 miles away.
Ancestors	It is believed that Polar bears separated from the brown bear lineage on the arctic coast of Siberia. Timeframe is unknown. The oldest Polar bear fossil is less than 100,000 years old.
Hunting Methods	They hunt using two methods, stalking and still-hunting. With stalking, the bear will spot a seal lying on the ice and will slowly approach the seal. With still-hunting, the bear will wait motionless, usually lying on their stomach, beside a seal's breathing hole and wait for the seal to surface.
Dental Structure	Polar bears have 42 teeth – 6 incisors, 2 canines, 4 premolars, and 5 molars (2 on top jaw, 3 on lower jaw).

Walrus Exhibit

Pacific Walrus (*Odobenus rosmarus divergens*)

Walrus Questions:

How many do you have? What are their names? When were they born?

We have 4 walruses: Aurora, Sitka, Brutus and Nereus.

Aurora- Born 5/95. She is easiest to tell apart from Sitka in that Aurora does not have any tusks. Also, the whiskers on the front of her face (called vibrissae) are a reddish-brown in coloration. Aurora weighed in at 1424 lbs. (646 kg) on 2/14/05.

Sitka- Born 5/95. Sitka has tusks that are a few inches in length and the vibrissae on the front of her face are blond. Sitka weighed in at 1421 lbs. (645 kg) on 2/14/05.

Brutus – Born 5/87. Brutus was found stranded in Point Barrow, Alaska in July, 1987 and was taken to Sea World in San Diego. He then moved to Sea World in Ohio which later became Six Flags. Brutus came to Indianapolis on a breeding loan in the fall of 2003. Six Flags of Ohio went out of business in 2004 and he remained on extended loan. He is now owned by Six Flags Marine World Vallejo. On 2/14/05, Brutus weighed in at 2804 lbs. (1272 kg) and is 10 ft. (305 cm) in length.

Nereus – Born 6/03. Nereus means “old man of the sea.” He was found abandoned on an Alaskan beach when he was just a few days old. With no signs of his mother, he was taken to the Alaska Sea Life Center for rehabilitation. He arrived in Indianapolis on August 19, 2003. On 2/14/05, Nereus weighed in at 405 lbs. (184 kg).

How deep is the pool? What is the temperature? The pool is ten feet deep and contains 100,000 gallons of saltwater. The water temperature is kept at a constant 52-58 degrees Fahrenheit.

What are the tusks used for? It was once believed that walrus used their tusks in order to uncover food on the bottom of the ocean floor. While foraging, however, walrus use the sensitive whiskers on the front of their face (called vibrissae) to find food. The tusks are used primarily in protection and in order to display an assert dominance. They can attempt to protect themselves against predators such as a polar bear by using their tusks. Walrus live in groups referred to as herds, where often times there are hundreds of walrus gathered together. The animal with the largest tusks tends to be one of the more dominant animals. The male with the largest, most impressive tusks also wins more confrontations during breeding season. Tusks are also used to help the walrus haul its body out of the water onto the ice.

Why are they so fat? The walrus have a very thick layer of blubber that insulates them from the arctic weather they live in. A walrus' blubber layer can be almost 6 inches thick. As the weather becomes colder their blubber layer becomes thicker. The blubber layer contains fine capillaries, allowing for the release any

excess body heat. Depending on whether the walrus' blood vessels are dilated or constricted, the walrus can either be a pinkish or gray color.

Do they make sounds? Walrus can make a variety of vocalizations including barks, growls, whistles, clicks, and even bell-tone sounds.

Do walrus migrate? Walrus move north in the summer and south in the winter in order to remain with the pack ice. Typically, the Pacific Walrus spend the winter months in the central and southern portions of the Bering Sea. As the weather becomes warmer and the ice melts (May and June), the walrus move north toward the Bering Strait, eventually ending up in the Chukchi Sea during July through October. The females, especially those with calves, begin migrating earlier than the males, who follow along behind in a separate herd.

How many are in the wild? *Total Estimated Population:* ~250,000, with most in the North Pacific

Special Characteristics:

Coloration/Coat	Varies according to age. Calves are dark brown. As the walrus grow older their skin lightens, possibly to a light brownish-pink coloration. The coloration of an individual walrus also depends on the ambient temperature. Walrus appear much lighter in cold water because blood vessels constrict, withdrawing blood from the skin. As more blood flows through the skin the walrus becomes a more reddish pink color.
Diet in the wild	Mainly mollusks, including clams, whelks, mussels, and snails. They have also been known to eat shrimp, birds, and occasionally Ringed and Bearded Seals. On average, an adult walrus can eat between 110-190 pounds of food per day.
Diet at the Zoo	Two types of fish (herring and capelin), clams, and squid. Each individual walrus receives a specific amount of food each day. This amount is calculated according to both their current weight and appetite. Currently the walrus are eating anywhere from 38 to 50 pounds of food each day. By the time the walrus are mature, it is possible they will eat around 75 pounds of fish each day.
Movement on land	Walrus are able to rotate their hips and walk on all four flippers
Movement in water	They propel themselves through the water by moving their hind flippers in a back and forth motion. They use their front flippers to steer. They generally swim 4mph, but can swim up to 22mph if needed. Since they are primarily bottom feeders, they must be able to dive deep. Walrus can dive up to 370 feet and can remain under water for as long as 25 minutes.
Ancestors	Thought to be related to seals or possibly even bears
Dental Structure	All walrus have tusks. Tusks are simply overgrown upper canines. The average tusk length is a little over one foot, but they can grow to be over three feet long. Walrus also have 16 other teeth, four on each side of both the lower and upper jaws.
Specializations	Walrus have an amazing suction power. They can suck a clam completely out of its shell.

Project Walrus

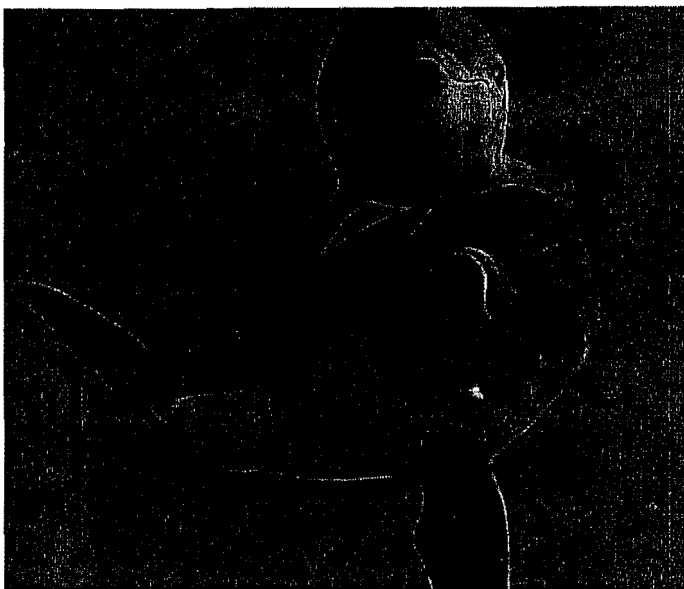


The walrus naturally has a low reproductive rate and declining population numbers are causing great concern for the walrus. The US has only 25 walrus in human care (9 males, 16 females). Since 1960, only 9 calves have been born in the U.S. captive population and only 1 has survived to adulthood. There has not been a complete population census since 1985.

With the launch of Project Walrus, the Zoo seeks to learn why these challenges are facing the walrus. Project Walrus specifically focuses on reproduction and physiology. This includes learning more about the walrus' dive

physiology to assist with chemical immobilization, determining accurate walrus estrous cycling, and developing effective techniques for ultrasounds, blood sampling and even artificial insemination.

Project Dolphin



One of the Zoo's many conservation projects, Project Dolphin seeks to maximize the reproductive capabilities of the Zoo's present dolphin population. The Zoo is playing a lead role in a multi-institutional cooperative breeding program for bottlenose dolphins. Together with the consortium of other institutions, the Zoo has reviewed each of its protocols and practices related to its' dolphin husbandry and reproduction program in an effort to vastly improve neonatal survival rates.

Each year in Sarasota, Florida, 75 participants from 13 organizations (zoos, aquaria, and conservation groups) gather to study Atlantic bottlenose dolphins in the wild. Indianapolis Zoo staff members have attended each year since 1999 to assist in conducting the most thorough study of wild Cetaceans to date.

The Indianapolis Zoo is committed to solving the riddle of the low survival rate of captive dolphins and to the greater understanding of a fascinating animal.

Dolphin Adventure

Atlantic Bottlenose Dolphin (*Tursiops truncatus*)

How many do you have? What are their names? When were they born? How much do they weigh? All of the adult dolphins were born around 1985 and then brought to the Dolphin Pavilion in 1989.

Nova – Nova is the most dominant female dolphin. She has a very small dorsal fin and is very dark gray in coloration. She weighs around 530 pounds, making her our largest dolphin.

Kalei – Kalei was the first calf to be born successfully at the Indianapolis Zoo. She was born on November 16, 2000 (her mother is Nova). She weighed 38 pounds and was 3 feet long when she was born.